Space Weather Forecast

Issued on Monday, 19 June 2023 at 01:16 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Minor/Moderate R1/R2 radio blackouts throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate over the past 24hrs, with a couple of Moderate-class flares, originating from sunspot regions located in the southeast quadrant. There are currently twelve sunspot groups on the visible disc, two of which are quite large and magnetically complex. These are in the southern/south-eastern part of the disc. All other regions appear generally stable.

Despite several coronal mass ejections (CMEs) observed around the periphery of the disc in the past 24 hours, none of these are considered to be Earth-directed.

Solar Wind / Geomagnetic Activity: The solar wind was indicative of the waning influence from a fast solar wind stream. The solar wind speed saw a gradual declining trend from Slightly Elevated to Slow-Ambient levels. The associated magnetic field and the all important north-south component was weak throughout. The net result of the above solar wind measures was mostly Quiet (Kp2) with Unsettled (Kp3) intervals.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar Activity is most likely to remain Low with some Moderate periods at times. With no significant regions leaving the disc in the coming four days, solar activity levels should remain unchanged. They may even increase given the bright flux regions observed in satellite imagery, indicating the potential for further regions to emerge from the far side.

Solar Wind / Geomagnetic Activity: Several CMEs were observed in coronagraph imagery but their analysis revealed that none are Earth-directed. Despite this, there is a chance for one of them to give a weak glancing blow on Day 4. Earth is now under the waning influence of the fast speed stream associated with CH12/- otherwise, with possible enhancements to the solar wind speed on Days 3 and 4 (21-22 June), under the influence of the HSS originating from either CH13 (southern hemisphere) or CH14 (northern hemisphere), probably more likely to be the latter, as this feature is larger and darker in appearance. All things considered, geomagnetic activity is expected to be mostly Quiet with a slight chance of Unsettled to Active intervals on Days 3 and 4 (21-22 June).

Energetic Particles / Solar Radiation: No solar radiation storms are expected, though a very Slight Chance of enhancement throughout given the current configuration of front-sided sunspot groups.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	60	60	60
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.